

be thus distributed. The barkbeetle comes very close to a common European species, *Tomicus suturalis* Gyll., in fact appears to be more closely allied to it than to the common North American species, *Tomicus calatus* Eichh.

Mr. Schwarz said that he had observed a similar habit of *Tomicus calatus* at Old Point Comfort, Va. Four or five years after the construction of the Government pier, broods of this species were found under the bark of piling which were subject to the salt spray.

Mr. Burke remarked that he had observed at Kent, Wash., that Douglas spruce piling which had been in the salt water for several months was attacked by the scolytid *Gnathotrichus* sp. in preference to that freshly cut.

—The following paper was presented for publication:

NEW SPECIES OF *BALANINUS*, WITH NOTES.

[Coleoptera, Curculionidæ.]

By F. H. CHITTENDEN.

While studying the species of this genus in the preparation of certain papers on the nut weevils for publication by the United States Department of Agriculture, the writer experienced considerable difficulty in correlating the sexes of several forms. This difficulty increased by the accumulation of specimens received from correspondents who mistook the beetles for the boll weevil, as many of these did not agree with named specimens in the National Museum or with published descriptions. Accordingly the writer undertook to obtain acorns from various sources, especially from the South, for rearing. Mr. F. E. Brooks, who is also interested in the biological study of the genus, at the writer's suggestion preserved males and females found in copulation, and the receipt of sets of specimens from him, collected at French Creek, W. Va., has greatly facilitated the completion of this paper, begun some time ago. It should, perhaps, not be necessary to state that of all described forms of *Balaninus* two feed on chestnut, one on hickory and pecan, and one on hazel, the remainder being, so far as we know, all acorn feeders. In a paper published in 1897 Col. T. L. Casey^a remarked that "the

^a Coleopterological Notices, vii, Annals of the N. Y. Academy of Science, Vol. ix, p. 655.

species having short beaks in both sexes are numerous within the borders of the United States and have only been superficially elaborated thus far." In the paper cited 9 additional species are described. The present paper describes 5, and it seems probable, as surmised by Colonel Casey, that there are still more awaiting description; in fact, it was only for lack of sufficient material that some of the forms mentioned in the present paper were not described earlier.

Balaninus baculi, n. sp. (fig. 3).

Elongate ovate, strongly convex above, brownish piceous; head, rostrum, antennæ, and legs piceo-rufous. Vestiture scant; of lower surface and legs, composed of short pale-gray scales; of elytra, the same, with many small, moderately dull brown, inconspicuous scaly areas.

Head about one-half as wide as thorax, eyes separated by three-fourths their width, space divided by an impressed line terminating in a rounded puncture posteriorly. Rostrum ♀ a little less than three-

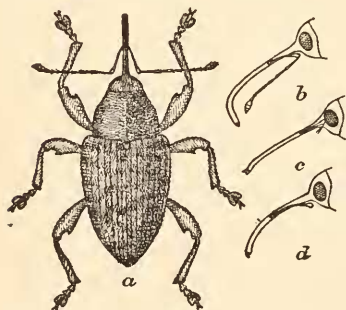


FIG. 3.—*Balaninus baculi*: a, Female beetle; b, head, rostrum, and antenna of typical female; d, head and rostrum of male; c, female of straight-beaked form. Four times natural size. (Original, U. S. Dept. Agr.)

fifths as long as the body, robust, of nearly uniform width, slightly widened at extreme base and apex, impunctate, nearly straight to anterior fourth or third, where it is more or less abruptly recurved; antennæ inserted just behind proximal third. Scape scarcely longer than first two funicular joints, first funicular a little shorter than second and third together, third scarcely shorter than second. Thorax one-fourth wider than long; sides strongly sinuous to apex, which is tubulate and emarginate; base subtruncate; disk moderately convex, densely, deeply and finely, and reticulately punctate. Elytra about one-

half longer than wide, nearly three times as long as, and less than three-fifths wider than thorax; strongly rounded at humeri, sides arcuate, rapidly convergent to apex. Striæ somewhat narrow and deep, with a single row of short white scales, with spaces between about equal to their own length. Intervals wide, moderately convex, rather finely and densely punctato-rugose. Scutellum nearly white, divided or entire. Lower surface with scaly covering sparse, scales mainly very short and whitish gray; fifth ventral segment deeply and widely concave at middle, with sides more than usually arcuate and rounded. Femora comparatively slender, teeth small, acute, with reentrant angle weak and rounded. Tibiæ slender, sinuous.

Male.—Rostrum a little shorter than in ♀, moderately and nearly uniformly arcuate, more thickened at extreme base and distinctly punctate. Antennæ inserted at middle, scape about as long as first four funicular joints. Fifth ventral segment with a very small apical bare area, showing margin, and with a tuft of hairs each side. Pygidium with long tuft of yellowish hairs.

Dimensions.—Length, 5.5-7.5 mm.; width, 2.8-3.2 mm.; rostrum ♀ 3.5-4.0 mm., ♂ 2.8-3.5 mm.

Habitat.—Ithaca, N. Y. (Chittenden); Ann Arbor, Mich. (Hubbard & Schwarz); Kanawha, W. Va. (Hopkins); Allegheny, Pa. (Hamilton); New Jersey; Heyworth, Ill., Sept. 31 (Wolcott); Cook Co., Ills. (Blackwelder); Okoboji, Ia. (Wickham); West Point, Nebr.; Stonewall, I. T.; Jackson, Miss.; Memphis, Tenn.; Goldsboro, N. C. (O. Sutter); Pleasant Hill, Ala., Oct. 15 (J. B. Rudolph); Auburn, Ala., Oct. 18 (E. M. Wilcox).

Type.—No. 11996, U. S. National Museum.

The above description was drawn from a good series from Ithaca, N. Y. Specimens from other localities exhibit considerable variation as regards the rostral structure, which is seldom so abruptly recurved at the apex as in the type. This species is known in collections generally as "*uniformis*" and is sometimes labelled "*obtusus*."

Observed by the writer in copula and in great numbers on two trees of *Quercus alba*, always in company with *Balaninus quercus*, at Ithaca, N. Y., September 1-8. Taken by Dr. A. D. Hopkins in West Virginia on yellow oak, *Quercus velutina (tinctoria)*. It also infests the acorns of other oaks, including most biennials.

***Balaninus baculi* var. *curtus*, n. var.**

Series from Texas and Florida, including reared material from Boerne, Tex., differ considerably from the northern forms, appearing to be deserving of a varietal name, particularly as they breed true to their own type. This form differs from typical *baculi* in its smaller size, wider elytra, and paler colored scales. The rostrum is proportionately and very distinctly shorter and more slender and not so abruptly recurved at the apex, frequently being nearly straight.

Length, 5.7-7.0 mm.; width, 2.7-3.2 mm.; rostrum, ♀ 3.0-3.2 mm.; ♂ 2.5-2.7 mm.

Habitat.—Boerne, Tex. (G. Schattenberg); Kaufman, Terrell, Atlanta, Dallas, Tex.; Crescent City, Fla. (Hubbard & Schwarz); Fort Drum, Fla. (A. Fredholm). Reared from acorns of *Quercus velutina*, furnished by Mr. Schattenberg, and of *Q. rubra* collected by Mr. C. R. Jones.

Type.—No. 11998, U. S. National Museum.

Balaninus uniformis Leconte.

Balaninus occidentis Casey, Ann. N. Y. Ac. Sci., ix, 1897, pp. 658-659.

Comparison of all available material from California—including specimens of both sexes from Colonel Casey's type localities, Santa Cruz and Sonoma counties, Cal., and specimens identified by Mr Frederick Blanchard by comparison with Leconte's types at Cambridge—with the description cited leaves practically no doubt that *occidentis* is a synonym of *uniformis*.

In the National Museum collection there are also specimens from Los Angeles, Mt. Wilson, Catalina Island, Humboldt County, Palo Alto, and Dunsmuir, Cal. There is also a small series collected by Messrs. Hubbard and Schwarz at American Fork, Utah, June 23.

It might be added that this species is clothed with ochreous scales, not gray as with *baculi*, previously described; also, that it is the only species of its genus recognized from the Pacific Coast States.

Balaninus q.-griseæ, n. sp.

Moderately robust, piceous, somewhat depressed; rostrum, antennæ, and legs rufous; vestiture of dorsum yellowish brown, hairy, of lower surface composed of elongate hair-like pale-gray scales; elytra with large, very variable, subtransverse pale fasciæ, appearing gray by contrast with the darker brown general color.

Head with a distinct, smooth interocular line. Rostrum ♀ three-fifths as long as body, slender, of uniform width, slightly elevated at extreme base, moderately arcuate, rather more so toward apex; antennæ inserted behind basal fourth, scape short, about as long as the first two funicular joints, first funicular long, second and third subequal. Thorax a little wider than long, basal half with sides parallel. Elytra moderately narrowed toward apex; striæ deep and wide, intervals rather strongly convex. Legs of moderate length, femora of posterior pair not extending beyond elytra, tooth large and conspicuous. Fifth ventral segment of ♀ strongly impressed in nearly the middle third.

Male.—Rostrum a little less than half as long as body, curvature similar to ♀; stout, much enlarged at base, scales covering nearly half from base to antennal insertion; antennæ inserted at or considerably behind middle; scape shorter than first three funicular joints. Last ventral segment and pygidium with yellow hairs forming a tuft extending beyond elytra.

Dimensions.—Length, 6-7 mm.; width, 2.8-3.2 mm.; rostrum ♀, 3.6-4.0 mm., ♂ 2.9-3.2 mm.

Ft. Grant, Ariz., reared from acorns of *Quercus grisea* received from H. K. Morrison, July 26, 1882. Oracle, Ariz., June 29–July 9; Sta. Rita Mts., Arizona, June 13–26; Williams, Ariz., June 30, on *Quercus gambelii* (Barber & Schwarz).

Type.—No. 11555, U. S. National Museum.

Allied to *strictus* and *longipes*, from which it may be readily separated by its much shorter legs and antennal scape, and interocular line. The coloration is variable, some specimens being almost reddish brown, with very distinct paler bands, others being nearly uniform brown or gray, while still others are gray, with yellowish thorax and a few yellow transverse bands.

Balaninus victoriensis Chittenden (fig. 4).

Balaninus victoriensis Chittn., Bul. 44, Div. Ent., U. S. Dept. Agric., 1904, p. 31.

Body moderately slender, black, except antennæ and claws which are rufous; rostrum black, or partly piceous. Vestiture dense, composed of gray or, exceptionally, pale ochreous scales, fine and short, shorter on lower surface. Elytra finely mottled with slightly elevated, brown, pubescent scaly spots.

Rostrum ♀ four-fifths as long as body, moderately, nearly uniformly arcuate, very slightly enlarged at extreme base and at apex, basal fourth somewhat strongly punctate. Antennæ inserted in apical fourth, scape as long as next $2\frac{1}{2}$ joints, second funicular joint three-fourths as long as first, one-fourth longer than third. Femora strongly clavate, tooth very large and prominent, apex produced, reëntrant angle nearly right, a little oblique.

Male.—Rostrum not exceeding one-half the length of the body, slightly more arcuate and enlarged at either extremity, antennæ inserted at or slightly behind middle. First and second ventral segments concave; fifth strongly narrowed, with a median, nearly bare concavity in apical half and with long apical hairs at sides.

Dimensions.—Length, 5.0–7.0 mm.; width, 2.4–3.6 mm.; rostrum, ♀ 3.8–5.5 mm., ♂ 2.8–3.5 mm.

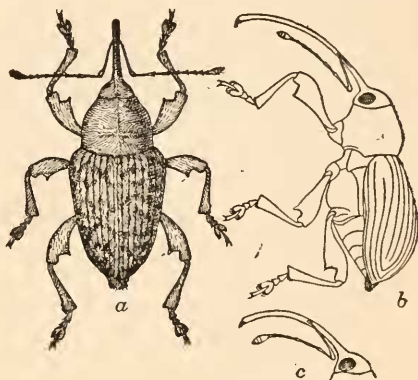


FIG. 4.—*Balanus victoriensis*: a, Female beetle; b, same in profile; c, head, rostrum, and antennæ of male. Four times natural size. (Author's illustration, U. S. Dept. Agr.)

Habitat.—Victoria, Tex. (type locality); Cypress Mills (coll. Chittenden), Boerne (G. Schattenberg); Dallas (Crawford et al.); Terrell (Hinds); Arlington, San Antonio (Pratt), and Chico, Texas.

Reared by the writer from acorns of *Quercus virens* and *Q. velutina* furnished by Mr. G. Schattenberg, Boerne, Tex., August 19 to Oct. 4, 1906. Also reared by Hon. J. D. Mitchell from *Q. macrocarpa* at Victoria, Tex.

The above description is somewhat elaborated from that previously published in Bulletin No. 44 (l. c.) and the illustration is from the same source.

Balaninus parvidens, n. sp.

Dark piceous, antennæ and sometimes rostrum rufous. Vestiture dense, composed of fine, pale-yellowish squamules, nearly hairy on dorsal surface, much shorter and wider below; elytra variegated with rather small, pale-brown spots.

Rostrum ♀ strongly and nearly equally arcuate, only three-fifths as long as body, scarcely enlarged at base and faintly at apex, antennæ slender, inserted near base, between the basal one-fourth and one-fifth; scape shorter than first two funicular joints. Elytral humeri prominent, striæ narrow, with few scales. Fifth ventral segment nearly triangular, moderately tufted at extreme apex. Femora moderately clavate, with posterior teeth not prominent and reëntrant angles feebly rounded.

Male.—Rostrum one-half as long as body, antennæ inserted perceptibly behind the middle. Fifth ventral segment with feebly concave, sometimes nearly bare median area with a small tuft of long yellow hairs each side and a longer pygidial tuft.

Dimensions.—Length, 6.0-7.0 mm.; width, 2.8-3.2 mm., rostrum, ♀ 3.3 mm., ♂ 3.0 mm.

Habitat.—Victoria, Tex., September and October (W. D. Hunter); Dallas, Tex. (F. C. Bishopp); Jamison, Ala., November 24 (J. W. Sorrell); Centreville, Fla. (Hubbard & Schwarz); Agricultural College, Miss. (H. E. Weed).

Type.—No. 11554, U. S. National Museum.

Bears a superficial resemblance to yellow forms of *victoriensis*, having the same type locality, but easily separated by the rostral, antennal, and femoral structure. The general effect is more uniformly pale yellowish than in any *victoriensis*.

Balaninus pardalis, n. sp.

Robust, piceous or subrufous; antennæ, rostrum, and legs rufotestaceous. Vestiture very dense, bright ochraceous; elytra strongly mottled with small brown spots or less closely united and forming bands.

Rostrum ♀ four-fifths as long as body, stout, moderately arcuate, more strongly in apical half, distinctly enlarged at base and at apex; a faint carina and punctuation barely indicated at extreme base; mandibles large and conspicuous, antennæ inserted in apical third, scape as long as next three joints. Thorax one-fourth longer than wide, strongly arcuate near middle, rapidly narrowing toward apex. Elytra three-fourths as wide as long, comparatively wide toward apex, striæ very fine. Femora not extending beyond elytra, strongly clavate, tooth large and prominent, reëntrant angle nearly right. Fifth ventral segment concave in median third.

Male.—Rostrum less than two-thirds as long as body, a little more strongly arcuate than in ♀, enlarged at either extremity; mandibles very large; antennæ inserted well behind the middle. Fifth ventral segment flat at middle, strongly bilobed at apex; pygidium produced into a *closed* tube of long hairs.

Dimensions.—Length, 6.0-7.5 mm.; width, 2.8-4.0 mm.; rostrum, ♀ 4.0-5.0 mm., ♂ 3.5-4.0 mm.

Habitat.—Washington, D. C., June 3, September-October 1 (E. A. Schwarz and others); Rosslyn, Va. (Chittenden); La Plata, Md. (E. R. Sasser); Allegheny, Pa. (Hamilton); Colemanville, Pa. (F. C. Pratt); Spring Lake Beach, N. J., Aug. 29 (Chittenden); Sandy Hook, N. J., New York, N. Y. (M. L. Linell); Berkeley, R. I. (H. C. Fall); French Creek, W. Va. (F. E. Brooks); Winston, N. C. (N. H. Willard); Rison, Ark. (W. J. Hollis); Eudora and Little Rock, Ark.; Victoria, Tex., Sept. 29.

Type.—No. 11553, U. S. National Museum.

In collections this species has been placed with *nasicus* and *quercus*, from both of which it differs by the shorter and thicker rostrum, with its enlarged apical extremity in the male. From the former also it can be distinguished by the shorter femora and more distinctly spotted character of the elytral vestiture, *nasicus* being marmorate. Another important character by which it may be separated from *quercus* is in the male, in which the abdomen is not produced into an open tube of hairs.

A large series shows considerable variation from the type as regards length of rostrum and scape and color. Pale individuals are frequently found as with other species.

This species has been reared in abundance by the writer from acorns of *Quercus bicolor*, *velutina*, and *pedunculata* at Washington, D. C., collected by various associates, and from *Quercus alba* collected by Mr. F. C. Pratt at Colemanville, Pa. Mr. Brooks writes that he has taken it abundantly at French Creek, W. Va., on *Q. alba* also, and, rarely, on *Q. prinus*.

It is somewhat singular that the species should have escaped notice for so long a period, since it is represented in most of the extensive collections of Coleoptera.

Balaninus orthorhynchus, n. sp.

Body slender, piceous or rufous, antennæ and base of rostrum more distinctly rufous. Vestiture dense, composed of pale yellowish squamules, finer on dorsal, much shorter and wider on lower surface. Elytra wide at base, strongly acuminate to apex; striæ of moderate width, with few scales; vestiture variable, nearly uniformly yellow or with pale brown spots of variable size.

Rostrum ♀ nearly straight, arcuate at extreme apex, of about the same length as the body and of uniform width; antennæ ♀ inserted near base at about the basal fifth, scape about the same length as the first two funicular joints. Fifth ventral segment subtriangular, strongly concave in medial third, slightly tufted at extreme apex. Legs long. Femora feebly clavate, posterior teeth small, acutely produced distally, reëtrant angles rounded.

Male.—Rostrum moderately arcuate, very short, scarcely half as long as the body; antennæ inserted slightly behind the middle. Fifth ventral segment with a small, partially denuded medial area in apical half.

Dimensions.—Length, 6.2-7.5 mm.; width, 2.8-3.2 mm.; rostrum, ♀ 6.5-7.0 mm., ♂ 3.0 mm.

Habitat.—French Creek, W. Va., collected by Mr. Fred. E. Brooks on *Quercus rubra* and *coccinea*, and other biennial oaks; Texas (Coll. C. V. Riley); 4 females, 2 males.

Type.—No. 11556, U. S. National Museum.

The rostrum of the female is more nearly straight than in any other long-beaked species of the genus, which character alone will distinguish it. It has otherwise somewhat the appearance of a small *B. quercus*, with which it is evidently nearly related.

Balaninus caseyi, n. nom.

Balaninus brevirostris Casey, Ann. N. Y. Ac. Sci., IX, 1897, pp. 662, 663.

Colonel Casey's name is preoccupied by Pascoe's *B. brevirostris* from Landana, Congo, South Africa (Jour. Linn. Soc. Zool., Vol. XIX, p. 331, 1886).

—The following paper, in the absence of the author, was read by title: